

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of the claims in the application:

1. (Previously amended) A triblock bola amphiphile composition comprising: a triblock bola amphiphile and a solvent, wherein the triblock bola amphiphile comprises a lyophobic moiety capable of hydrogen bonding and having a first end and a second end; the first end of said lyophobic moiety chemically coupled to a first lyophilic head group; and the second end of said lyophobic moiety chemically coupled to a second lyophilic head group, wherein one lyophilic head group is selected from the group consisting of oligo(ethylene glycol) chains or cyclic oligo(ethylene glycols) chains and the other lyophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine.

2-4. (Canceled)

5. (Currently amended) The bola amphiphile as in claim 1-~~4~~2, wherein one lyophilic head group is oligo(ethylene glycol) chains and the other lyophilic head group comprises an amino acid sequence of glutamic acid-glutamic acid-glutamic acid.

6. (Previously amended) A self assembled micelle comprising: at least one triblock bola amphiphile, said triblock bola amphiphile having a lyophobic moiety capable of hydrogen bonding and having a first end and a second end; the first end of said lyophobic moiety chemically coupled to a first lyophilic head group; and the second end of said lyophobic moiety chemically coupled to a second lyophilic head group, wherein one lyophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains, and the other lyophilic head group comprises an

amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence, glutamic acid-glutamic acid-glutamic acid or lysine-lysine-lysine.

7. (Original) The micelle of claim 6 wherein the lyophilic head groups of the bola amphiphile are different.

8. (Original) The micelle of claim 6 wherein the core of the micelle is lyophilic.

9. (Original) The micelle of claim 6 wherein the one or more bola amphiphiles comprising the micelle are capable of hydrogen bonding.

10-12. (Canceled)

13. (Previously Amended) A method of making a self assembled micelle from triblock_bola amphiphile with a lyophobic moiety capable of hydrogen bonding and having a first end and a second end; the first end of said lyophobic moiety chemically coupled to a first lyophilic head group; and the second end of said lyophobic moiety chemically coupled to a second lyophilic head group, wherein one lyophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains, and the other lyophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine, comprising the steps of: making a first solution of the triblock bola-amphiphile in a charged ionic form; mixing the first solution with a second composition which changes the pH of the first solution towards a neutral pH; and reacting the first and second solutions until a gel forms.

14. (Previously amended) A method of encapsulating a therapeutic agent comprising: providing a therapeutic agent; exposing said therapeutic agent to a bola amphiphile capable of self assembly, wherein the bola amphiphile comprises a lyophobic moiety capable of hydrogen bonding, the amphiphile having a first end and a second end; the first end of said lyophobic moiety chemically coupled to a first lyophilic head group; and the second end of said lyophobic moiety chemically coupled to a second lyophilic head group, wherein one lyophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains, and the other lyophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine; and initiating self assembly.

15. (Currently amended) A method of treating a patient in need thereof with a therapeutic agent encapsulated in a self assembled bola amphiphile, wherein the bola amphiphile comprises a lyophobic moiety capable of hydrogen bonding, the amphiphile having a first end and a second end; the first end of said lyophobic moiety chemically coupled to a first lyophilic head group; and the second end of said lyophobic moiety chemically coupled to a second lyophilic head group, wherein one lyophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains, and the other lyophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine, comprising: identifying a site on a patient in need of a treatment; and administering ~~a therapeutic amount of~~ the bola amphiphile encapsulated therapeutic agent to said site.

16. (Previously amended) A method of encapsulating a nanotube comprising: forming a nanotube; exposing said nanotube to a bola amphiphile capable of self assembly and comprising a lyophobic moiety capable of hydrogen bonding, the bola

amphiphile having a first end and a second end; the first end of said lyophobic moiety chemically coupled to a first lyophilic head group; and the second end of said lyophobic moiety chemically coupled to a second lyophilic head group, wherein one lyophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains, and the other lyophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine, and initiating self assembly of said bola amphiphile.

17. (Previously amended) A triblock bola amphiphile composition comprising: a solvent and a hydrophobic moiety capable of hydrogen bonding and having a first end and a second end; the first end of said hydrophobic moiety chemically coupled to a first hydrophilic head group; and the second end of said hydrophobic moiety chemically coupled to a second hydrophilic head group, wherein one hydrophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains and the other hydrophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine.

18-21. (Canceled)

22. (Previously amended) A self assembled micelle comprising: at least one bola amphiphile, said bola amphiphile having a hydrophobic moiety capable of hydrogen bonding and having a first end and a second end; the first end of said hydrophobic moiety chemically coupled to a first hydrophilic head group; and the second end of said hydrophobic moiety chemically coupled to a second hydrophilic head group, wherein one hydrophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains-and the other hydrophilic head group

comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or an amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine.

23. (Original) The micelle of claim 22 wherein the hydrophilic head groups of the bola amphiphile are different.
24. (Original) The micelle of claim 22 wherein the core of the micelle is hydrophilic.
25. (Previously amended) The micelle of claim 22 wherein the at least one bola amphiphiles comprising the micelle are capable of hydrogen bonding.
- 26-28. (Canceled)
29. (Previously amended) A method of making a self assembled micelle from bola amphiphile with a hydrophobic moiety capable of hydrogen bonding, wherein the bola amphiphile has a first end and a second end; the first end of said lyophobic moiety chemically coupled to a first lyophilic head group; and the second end of said lyophobic moiety chemically coupled to a second lyophilic head group, wherein one lyophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains, and the other lyophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine, comprising the steps of: making a first solution of the triblock bola-amphiphile in a charged ionic form; mixing the first solution with a second composition which changes the pH of the first solution towards a neutral pH; and reacting the first and second solutions until a gel forms.

30–32. (Canceled)

33. (Original) The micelle as in claim 6, further comprising a composition chosen from the group consisting of: pharmaceuticals, chemotherapeutics, immunosuppressants, antifungals, antibacterials, growth factors, vaccines, tissue/cell culture factors, and antibiotics.

34. (Currently amended) The micelle as in claim 6, further comprising a material chosen from the group consisting of: carbon nanotubes, colloidal metals, conductive polymers, magnetic colloids, and semiconductors.

35. (Original) The micelle as in claim 22, further comprising a composition chosen from the group consisting of: pharmaceuticals, chemotherapeutics, immunosuppressants, antifungals, antibacterials, growth factors, vaccines, tissue/cell culture factors, and antibiotics.

36. (Original) The micelle as in claim 22, further comprising a material chosen from the consisting of: carbon nanotubes, colloidal metals, conductive polymers, magnetic colloids, and semiconductors.